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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/727,861	12/04/2003	Curt E. Metzbower	LDC-913	7904
23439	7590	11/01/2005		
DENTSPLY INTERNATIONAL INC 570 WEST COLLEGE AVENUE YORK, PA 17404			EXAMINER DONAHOE, CASEY D	
			ART UNIT	PAPER NUMBER
			3732	

DATE MAILED: 11/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/727,861

Applicant(s)

METZBOWER, CURT E.

Examiner

Casey Donahoe

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 2/6/2004.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

## **DETAILED ACTION**

### ***Priority***

1. Applicant's claim for domestic priority under 35 U.S.C. 119(e) is acknowledged. The application will receive the benefit of an earlier filing date corresponding to Provisional Application No. 60/431961, filed on 12/09/2002.

### ***Information Disclosure Statement***

2. Examiner acknowledges applicant's Information Disclosures Statement(s), filed 2/26/2004, and has considered the documents listed therein.

### ***Drawings***

3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the canula mentioned in claim 23 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet,

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and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

#### ***Specification***

4. The disclosure is objected to because of the following informalities: "Compule" on page 8, 4<sup>th</sup> paragraph.

Appropriate correction is required.

#### ***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-18 and 20-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Colin et al. (5,033,650) in view of Bender (U.S. 5,707,234).

Colin et al. discloses a capsule-like cartridge (Fig. 1) comprising:

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An elongated body (12) molded from rigid plastic material and having a cylindrical body wall of predetermined length, uniform interior diameter, uniform exterior diameter, central axis, an open end formed at the extremity, and an arcing interior surface, where the end wall has substantially greater thickness than the cylindrical body wall (when combined with the nozzle);

A nozzle (14) extending from the end wall having an effectively cylindrical inner nozzle wall, where the nozzle has an entrance passage through the end wall to the nozzle, an inner channel wall (effective diameter of  $D_2$ ) and channel wall exit orifice rim;

Wherein the inner chamber wall has a chamber wall exit port rim (21) (diameter of  $D_1$ ), opening between the inner chamber wall and inner channel wall, and diameter  $D_2$  effectively being greater than diameter  $D_1$  (see first illustration further below);

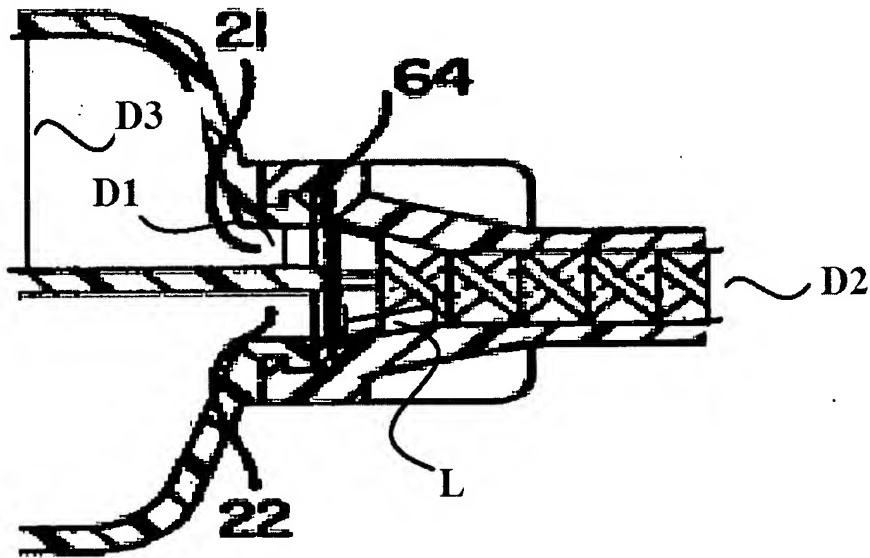
A piston (19) having a sidewall being closely complementary to the cylindrical inner body wall and inserted into the open end thereof.

Regarding claims 1 and 11, Colin et al. fail to disclose an ejector type holder and means for the cartridge to attach to the holder via an annular flange, a hemispherical exterior surface, the nozzle being integrally molded to the cartridge, and the nozzle extending from the end wall at an obtuse angle. Bender discloses a cartridge (34) in Fig. 9 for dispensing dental material in which the cartridge has a semispherical exterior surface and exterior annular flange (56) for attachment to an ejector type holder (Fig. 1) as well as a nozzle (64) integrally molded to the cartridge and extending at an obtuse angle therefrom. Because Colin et al. does not disclose a need or reason for the nozzle

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and cartridge to be separable, it would have been obvious to one of ordinary skill in the art at the time of the invention to integrally mold the nozzle and cartridge together during manufacture, since such a practice is a well known equivalent in the art as demonstrated by Bender. Furthermore, it would have been an obvious matter of design choice to one of ordinary skill in the art at the time of the invention to form the cartridge disclosed by Colin et al. with an hemispherical exterior surface because Applicant has not disclosed that such a surface shape provides an advantage over other surfaces known in the art. One of ordinary skill in the art would expect the angled surface disclosed by Colin et al. to perform equally well with the semispherical surface disclosed by Bender and Applicant, because both are sloping toward the chamber exit rim. While Bender does not explicitly state the reasons for the ejector type holder it is well known in the art to use such holders to more easily position the cartridge and dispense the cartridge material into the patient's mouth. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the cartridge disclosed by Colin et al. with the annular flange disclosed by Bender so that it may also cooperate with an ejector type holder to more easily dispense the dental material. And while Bender does not explicitly state the reason why the nozzle extends from the cartridge at an obtuse angle, such a configuration is well known in the art to provide better access to the patient's teeth without having to position the holder in an awkward position. It would have been obvious to one of ordinary skill in the art at the time of the invention to angle the nozzle disclosed by Colin et al. in a similar manner so that it may be easily used to dispense dental material into the patient's mouth.

Regarding claims 6-10 and 16-18, Colin et al. disclose a cartridge wherein the inner channel wall effective diameter (D2) is at least 20% greater than the chamber wall exit port rim effective diameter (D1), as illustrated in the modified drawing of Fig. 1 below.



Regarding claims 10 and 21, Colin et al. disclose a cartridge wherein the inner chamber wall has an inner chamber wall effective diameter (D3) greater than the inner channel wall effective diameter (D2), as illustrated above.

Regarding claim 20, Colin et al. disclose a cartridge wherein the nozzle entrance passage has a length (L), which is greater than 3% the diameter of the entrance port (D2), as illustrated above.

Regarding claims 2-4 and 12-14, Bender discloses a cap (70), supported by and closing the outer end of the nozzle to seal the contents of the cartridge against ingress of any surrounding contaminating matter. The cap is also color-coded to indicate desired properties of the contents of the cartridge (Column 5, lines 34-55).

Regarding claim 22, Bender discloses a bead, or protrusion, circumscribing the nozzle to help seal the cap (70) to the nozzle (see Fig. 4). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the cartridge disclosed by Colin et al. with the color-coded cap and bead to secure it, as disclosed by Bender, so that the nozzle may also be sealed against ingress of contaminating matter and the properties of the cartridge's contents appropriately marked for the dentist.

Regarding claim 5 and 15, Bender discloses molding the cartridge and piston from a plastic material, which is impervious to the transmission of ambient light and actinic light (Column 4, lines 54-59) to prevent premature setting of dental contents, which could be sensitive to light. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the cartridge disclosed by Colin et al. to be molded from a plastic material with the properties disclosed by Bender, so that it may also be used in combination with light-sensitive dental materials.

7. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Colin et al. in view of Bender as applied to claims 1-18 and 20-22 above, and further in view of Evers et al. (U.S. 6,503,084).

Colin et al. disclose a cartridge with a nozzle as described above which is inherently capable dispensing 0.01 to 1.0 ml of a polymerizable high viscosity dental composition. Bender discloses an ejector-type holder for use with a cartridge and nozzle as well as appropriate materials and cartridge configurations to use for dental applications. The cartridges disclosed in either are inherently capable of being used in a method comprising the steps of: conveying high viscosity dental composition into



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their reservoir, storing the cartridge for at least a week, and dispensing the composition onto a tooth. However, neither Colin et al. nor Bender disclose a canula for use in combination with the cartridge. However, Evers et al. disclose a similar cartridge and nozzle configuration (Fig. 1) for use with dental materials, in which a canula (4) is coupled to the nozzle to allow direct, precise and hygienic placement of dental materials as well as to provide the dentist with visibility (Column 2, lines 30-34). It would have been obvious to one of ordinary skill in the art at the time of the invention to use the canula disclosed by Evers et al. in combination with the cartridge disclosed by Colin et al. so that the dentist operating such a cartridge could do so with more precision, hygienic care, ease, and visibility.

8. Claims 22 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Guillot (FR 2501080 A) in view of Bender.

Guillot discloses a capsule-like cartridge (Fig. 2) comprising:

An elongated body having a cylindrical body wall of predetermined length, uniform interior diameter, uniform exterior diameter, central axis, an open end formed at the extremity, where the end wall has substantially greater thickness than the cylindrical body wall;

A nozzle (40) extending from the end wall having an effectively cylindrical inner nozzle wall, where the nozzle has an entrance passage through the end wall to the nozzle, an inner channel wall (effective diameter of D2) and channel wall exit orifice rim;

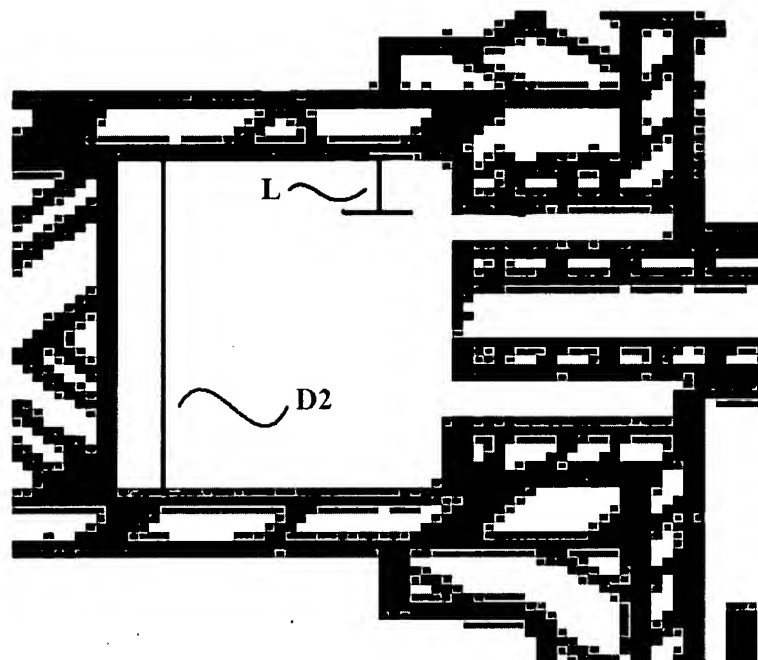
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Wherein the inner chamber wall has a chamber wall exit port rim (diameter of D1), opening between the inner chamber wall and inner channel wall, and diameter D2 effectively being greater than diameter D1;

A piston (58) inserted into the open end of the cylindrical body.

Regarding claim 11, Guillot fails to disclose cooperation with an ejector-type holder and the nozzle extending at an obtuse angle. As discussed before, Bender discloses a cartridge (34) in Fig. 9 for dispensing dental material, which attaches to an ejector-type holder. While Bender does not explicitly state the reasons for the ejector type holder it is well known in the art to use such holders to more easily position the cartridge and dispense the cartridge material into the patient's mouth. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the cartridge disclosed by Guillot. with the annular flange disclosed by Bender so that it may also cooperate with an ejector type holder to more easily dispense the dental material. And while Bender does not explicitly state the reason why the nozzle extends from the cartridge at an obtuse angle, such a configuration is well known in the art to provide better access to the patient's teeth without having to position the holder in an awkward position. It would have been obvious to one of ordinary skill in the art at the time of the invention to angle the nozzle disclosed by Colin et al. in a similar manner so that it may be easily used to dispense dental material in the patient's mouth.

Regarding claim 19, Guillot discloses a nozzle entrance passage length (L) less than 20% of the diameter of the entrance port (D2), as illustrated in the modified drawing of Fig. 2 below.



### ***Conclusion***

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Dougherty (U.S. 4,391,590) is a cartridge for viscous material.

Discko, Jr. (U.S. 5,267,859) is a bulk dental cartridge combined with single patient cartridge.

Dragan (U.S. 4,619,613) is a bulk dental syringe with a disposable nozzle tip.

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Bunce (U.S. 5,401,254) is a cartridge with restricted diameter for preventing dripping.


Spencer et al. (U.S. 5,816,453) is a dispenser pump.

Donohue et al. (U.S. 4,617,918) is a gum treatment device with an enlarged nozzle.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Casey Donahoe whose telephone number is (571) 272-2812. The examiner can normally be reached on Monday - Thursday (7:30 - 5:00).


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kevin Shaver can be reached on (571) 272 -4720. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Ralph A. Lewis  
Primary Examiner  
AU 3732

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Casey Donahoe  
Examiner  
Art Unit 3732

  
10/28/05